

Compliance Test - 1/26/99 SC1-Stack 1

Calculated Stack Concentration - Chromium

$$C_{Cr(mg/dscm)} = \frac{(M_{Cr})(T_m + 460)}{(499.8)(Y_m)(V_m)(P_{bar})}$$

$$C_{Cr(\mu g/acfm)} = \frac{C_{Cr(mg/dscm)} * 1000}{(T^s / 528^\circ R) * (29.92 / P_{abs}) * (100 / (100 - \% H_2O))}$$

$$mg/hr = (C_{Cr(\mu g/acfm)} * (Q_{acf} * .02832) * 60) / 1000$$

M_{Cr} = Amount of Cr in sample (μg)

T_m = Dry gas meter temperature

Y_m = Dry gas meter correction factor

V_m = Dry gas meter volume (ft^3)

P_{bar} = Barometric pressure

$\% H_2O$ = Percent H_2O

P_s =Static Pressure

Test #1

$$C_{Cr(mg/dscm)} = 0.0072$$

$$C_{Cr(\mu g/acfm)} = 7.05$$

$$mg/hr = 217.37$$

$$M_{Cr} = 19.35$$

$$T_m = 48$$

$$Y_m = 1.05$$

$$V_m = 85.94$$

$$P_{bar} = 30.24$$

$$T_s = 73.5$$

$$Assumed \% H_2O = 2$$

$$P_s = 0.37$$

$$Q_{acf} = 18141$$

Test #2

$$C_{Cr(mg/dscm)} = 0.0075$$

$$C_{Cr(\mu g/acfm)} = 7.33$$

$$mg/hr = 226.01$$

$$M_{Cr} = 19.50$$

$$T_m = 53$$

$$Y_m = 1.05$$

$$V_m = 83.98$$

$$P_{bar} = 30.27$$

$$T_s = 75$$

$$Assumed \% H_2O = 2$$

$$P_s = 0.37$$

$$Q_{acf} = 18141$$

Test #3

$$C_{Cr(mg/dscm)} = 0.0055$$

$$C_{Cr(\mu g/acfm)} = 5.38$$

$$mg/hr = 165.91$$

$$M_{Cr} = 14.25$$

$$T_m = 55$$

$$Y_m = 1.05$$

$$V_m = 84.22$$

$$P_{bar} = 30.30$$

$$T_s = 75$$

$$Assumed \% H_2O = 2$$

$$P_s = 0.37$$

$$Q_{acf} = 18141$$

Averages:

$$C_{Cr(mg/dscm)} = 0.0067$$

$$C_{Cr(\mu g/acfm)} = 6.59$$

$$mg/hr = 203.10$$

Lab Results

	Total Vol.	ug/ml
Test 1	450	0.043
Test 2	500	0.039
Test 3	475	0.03